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ABBREVIATIONS

EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FPMR	Federal Property Management Regulations
GAO	General Accounting Office
GSA	General Services Administration
PBS	Public Building Service

JUL 3 1 1980 GA1.13:PSAD-80-62

BY THE COMPTROLLER GENERAL

Report To The Chairman, Subcommittee On Federal Spending Practices And Open Government, Committee On Governmental Affairs, United States Senate

OF THE UNITED STATES

COMPLETED
ORIGINAL

Problems Overwhelm GSA's Systems Furniture Test Program

The General Services Administration (GSA) launched its Systems Furniture Test program in 1978 to demonstrate that modular-type furniture saved space and was cost effective. However, the program has had numerous problems and has produced few, if any, benefits. It has not demonstrated that systems furniture saves either money or space.

GSA recently approved a new systems furniture project which shows the same poor management and review problems as past projects.

GSA responded to this report by suspending the program until proper management controls are in place to ensure that only cost-effective applications are pursued.

PSAD-80-62
[redacted] 28, 1980
July

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-199426

The Honorable Lawton Chiles
Chairman, Subcommittee on Federal Spending
Practices and Open Government
Committee on Governmental Affairs
United States Senate

Dear Mr. Chairman:

In your November 9, 1979, request, you asked that we review the Government's furniture procurement. As agreed with your office, we concentrated our review on the General Services Administration's Systems Furniture Test program. Our review disclosed several problem areas, including unwarranted expansion of the program, unsupported space savings, and a lack of cost effectiveness.

As arranged with your office, we obtained agency comments from the Administrator, General Services, but did not obtain comments from the other agencies included in this report. Also, we have included in the report a listing of the principal officials of the General Services Administration responsible for the Systems Furniture Test program. As agreed, we are sending copies of this report to other interested parties.

Sincerely yours,

Comptroller General
of the United States

A

COMPTROLLER GENERAL'S
REPORT TO THE SUBCOMMITTEE
ON FEDERAL SPENDING PRACTICES
AND OPEN GOVERNMENT
COMMITTEE ON GOVERNMENTAL AFFAIRS
UNITED STATES SENATE

PROBLEMS OVERWHELM GSA'S SYSTEMS FURNITURE TEST PROGRAM

D I G E S T

The General Services Administration (GSA) launched a test program in March 1978 to demonstrate the space saving potential and cost effectiveness of systems furniture. However, the program has had so many problems and demonstrated so few advantages that GAO believes it should be abandoned.

Systems furniture is modular-type furniture consisting of work surfaces, storage drawers, files, and privacy panels. The modular components can be assembled into various sizes and shapes to meet individual needs and are supposed to reduce office space requirements by using overhead storage and reducing the area needed for furniture. However, GAO found the program has been poorly managed and has failed to demonstrate either of its objectives.

GSA planned to test the furniture in a 3-year test program. In the first year, 23 projects involving 1,800 work stations and costing an estimated $3.5 million were authorized. In the second year, 220 projects were approved involving 13,500 work stations and costing about $22.5 million. In October 1979, the program was temporarily halted when the GSA Administrator imposed a moratorium on all furniture purchases.

The dramatic expansion of the test program in the second year was unwarranted. GSA embarked on the expansion without demonstrating any cost effectiveness or space saving results from projects approved in the first year. It had not compiled sufficient data to justify either space saving or cost-effectiveness claims. (See pp. 5 and 6.)

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Preliminary data from a consultant's study indicated that two of the four projects initially evaluated were not cost effective, but GSA expanded the program before receiving these results. The other two projects may prove to be uneconomical when total project costs are considered. (See pp. 6 and 7.)

Alternatives to the systems furniture concept, such as improved records management and information handling systems, were not considered. At one site, the space savings attributed to systems furniture were actually due to such an alternative. (See pp. 7 to 9.)

GSA's direction and control of the program was not effective. In approving systems furniture projects, it ignored its own space standards. At one site, space could have been saved by making the agency adhere to standards rather than authorizing the purchase of systems furniture. GSA officials were unaware when agencies did not purchase either the number or type of work stations proposed in project applications or that agencies did not achieve the space savings projected. (See pp. 9 to 11.)

GAO's review of 23 project applications and visits to 7 project sites uncovered many problems. Space savings attributed to systems furniture could not be demonstrated. In most cases, either savings did not occur or were overstated, and the costs incurred outweighed any space economies.

Officials at only one of seven project sites performed a cost-benefit analysis before purchasing systems furniture and then the actual installation was sufficiently different from the proposed installation to negate any proposed space savings. Only three of the sites could identify the actual space occupied before the systems furniture was installed, so space savings claims were undocumented. GSA's method of calculating space savings resulted in an overstatement of the savings and a more favorable cost-benefit analysis. (See pp. 12 and 13.)

Actual costs of some projects were significantly higher than the estimated costs used to justify the projects. Several projects contained large numbers of unused work stations; some stations were still in cartons over 1 year after they were purchased. (See pp. 15 and 16.)

GAO also found agency applications did not indicate the projected effect of new furniture on productivity and employee morale. GSA and its consultant decided such factors could not be effectively measured, but productivity and morale are important factors which need to be considered in such a program. (See pp. 13 and 14.)

A review of a recently approved project showed a continuation of the same poor management and superficial review of projects by GSA and unsubstantiated claims of space savings and cost effectiveness. (See ch. 4.)

CONCLUSIONS

The program has been poorly managed and has failed to demonstrate either space savings or cost effectiveness--its main objectives.

AGENCY COMMENTS

As arranged with the Senate Subcommittee on Federal Spending Practices and Open Government, Committee on Governmental Affairs, GAO obtained comments from the Administrator, GSA, but did not obtain comments from the other agencies included in this report.

In responding to GAO's draft report, GSA agreed with our proposal that the test program should be canceled immediately. (See app. I.) GSA stated that the test program would be canceled immediately and that the acquisition of systems furniture would be suspended "* * * until adequate data has been collected and proper management controls are in place to ensure that only cost-effective applications of systems furniture are pursued."

Although GAO concurs with GSA's proposed actions, GAO has some reservations since GSA's

test program had similar objectives. As a result, GAO plans to evalute GSA's future actions to correct program deficiencies, establish proper management controls, and ensure that only cost-effective applications of systems furniture are pursued.

CHAPTER 1

OVERVIEW OF THE SYSTEMS FURNITURE TEST PROGRAM

The Federal Property and Administrative Services Act of 1949 created the General Services Administration (GSA) to give the Government an efficient and economical system for procuring, supplying, and managing personal and real property. Under the guidance of this act, GSA procures and manages many items such as furniture. Most agencies are required to use GSA as a primary source of supply when purchasing furniture. In March 1978 GSA launched a test of the systems furniture concept.

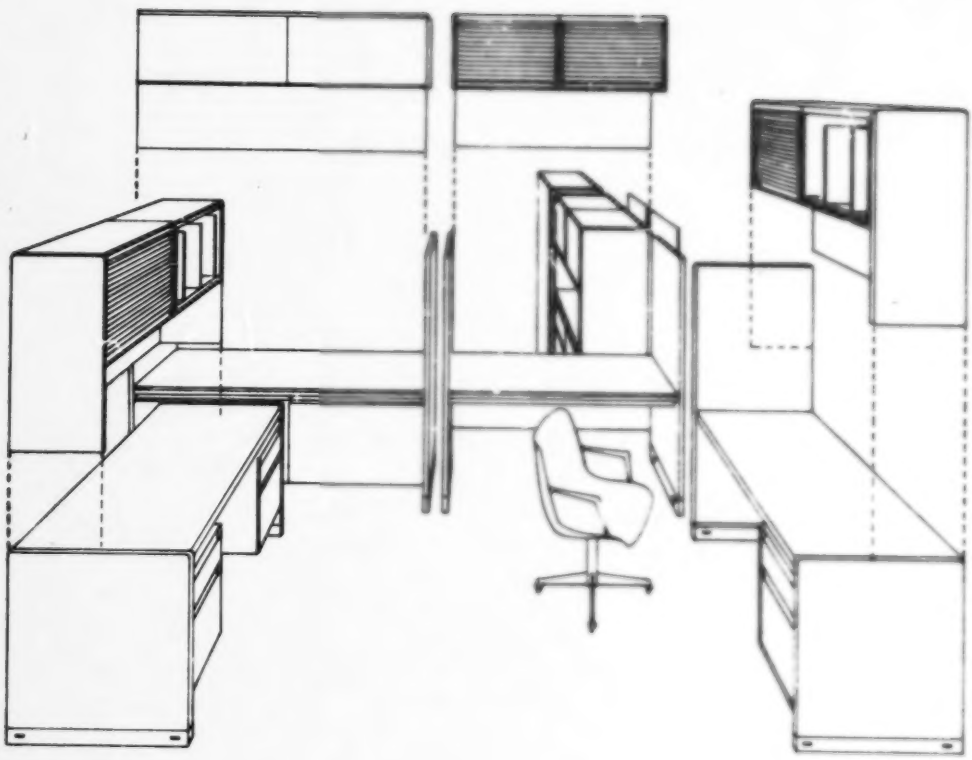
Systems furniture consists of modular components such as work surfaces, storage drawers, shelves, files, and privacy panels which can be assembled into various sizes and shapes to meet the needs of a particular individual or organization. (See picture on p. 2.) By using overhead storage and reducing the area needed for freestanding furniture, the systems furniture concept can reduce office space requirements. The systems furniture concept was to achieve two primary benefits: (1) save space and thereby save money by avoiding or reducing rental costs and (2) provide a better working environment and thereby improve employee productivity.

OFFICE EXCELLENCE PROGRAM, A FORERUNNER OF THE SYSTEMS FURNITURE PROGRAM

Under an earlier furniture buying program termed "Office Excellence," GSA emphasized a similar space saving objective. The Office Excellence program promoted the concept of optimized space use in an open plan office setting. This program also stressed creating a pleasant office environment by using advanced furniture designs. The program did not achieve its space saving objective because agencies failed to use professional space planning services, which led to ineffective furniture arrangements and the buying of excessive quantities of furniture often for reasons other than space savings. GSA also failed to obtain feedback on the program's effectiveness. Updating and beautifying Federal office space became the driving force behind agency purchases of furniture under this program.

THE SYSTEMS FURNITURE TEST PROGRAM

GSA established the Systems Furniture Test program in response to agency pressure to supply systems furniture.



Before authorizing Government-wide procurement of this furniture, GSA decided a test should be conducted to demonstrate whether benefits attributed to systems furniture (save spacing and improving employee productivity) could be achieved. The program's objectives were to

--place systems furniture in Government space;

--maximize the chances of successful installations;

--minimize problems by use of specific reviews, strict qualifications, and tight process controls; and

--demonstrate space savings and cost effectiveness over the life of each project.

In an attempt to avoid problems associated with the Office Excellence program, GSA determined that

--only commercial products of proven quality would be procured,

--participating agencies would be required to use professional space planning services and obtain GSA's approval of the plan before buying the furniture,

--complete furniture systems must be installed,

--all stages of the project would be evaluated through the use of a private contractor, and

--the cost and benefits of the furniture would be evaluated based on its useful life.

GSA originally planned a 3-year test program. During the first year (Mar. 1, 1978, to Feb. 28, 1979), GSA purchased the furniture with the ordering agencies' money and provided space planning design services. Applications for 23 projects encompassing about 1,800 work stations for an estimated $3.5 million were approved. During the second year (Mar. 1, 1979, to Feb. 29, 1980), GSA allowed the agencies to purchase their own furniture from the Limited Systems Furniture Schedule. GSA estimated that over $40 million would be spent on about 300 projects during the second year and about the same amount in the third year. During an 8-month period of the second year, 220 projects were approved to buy 13,500 work stations for an estimated $22.5 million, a 600-percent increase over the first year's estimates.

In October 1979, however, GSA temporarily stopped approving projects when the GSA Administrator placed a "freeze" on all furniture purchases. In February 1980 GSA, anticipating an end to the moratorium, extended the schedules contract for the second year by 60 days to allow agencies time to purchase furniture for projects approved before the furniture moratorium. However, in late February 1980, GSA's furniture moratorium was superseded by an Office of Management and Budget freeze on furniture purchases.

CURRENT ACTIONS

On March 6, 1980, GSA's Administrator suspended all purchases of systems furniture over $10,000 pending a review and recommendation of GSA's Systems Acquisition Review Council. The Council's report, issued on June 2, 1980, proposed a temporary halt to purchasing systems furniture until proper management controls are implemented. (See app. I).

GSA's Federal Supply Service has organized its own task force to study the program, and GSA's Public Building Service (PBS) has introduced a cost-benefit analysis form and an architectural programing form for use after the freeze is lifted. GSA officials view these latest measures as necessary to avoid problems encountered during the first 2 years of the program.

SCOPE OF REVIEW

Our review was conducted from December 1979 to May 1980. We visited 7 project sites and reviewed 20 other project applications selected on the basis of their state of completion and size. We held discussions with cognizant officials and reviewed pertinent records of PBS Headquarters, Washington, D.C.; the Federal Supply Service Headquarters, Arlington, Virginia; the National Capital Region Office of GSA, Washington, D.C.; and three agency projects in the Washington, D.C., area--two located in the Department of Agriculture and the third in the Army Corps of Engineers. Also, we held discussions with officials and reviewed records at the GSA regional office, the Environmental Protection Agency (EPA), the Department of Health and Human Services, the Department of Labor, and the GSA/National Archives and Records Service, all located within GSA region 1 in Boston, Massachusetts. We also reviewed an interim draft report of the Buffalo Organization for Social and Technological Innovation (BOSTI), Inc., a consultant employed by GSA to evaluate the Systems Furniture Test program.

CHAPTER 2

POOR MANAGEMENT BY GSA HAMPERED THE TEST PROGRAM

GSA prematurely expanded the Systems Furniture Test program dramatically during the program's second year. GSA based its expansion decision on space savings estimates derived from agency project applications--estimates which we found were incorrect or incomplete or both. In reviewing the test program, we found that GSA embarked on this dramatic expansion without

--establishing a ceiling on either the number of projects or the costs to be incurred,

--receiving any feedback from a consultant it hired to evaluate the economic and behavioral aspects of the program, and

--considering or evaluating any alternatives.

Program managers at GSA lacked even rudimentary knowledge of what was actually occurring at project sites we visited. As a result of the unwarranted expansion and poor management of the program, we believe significant amounts of money may have been wasted.

UNWARRANTED EXPANSION OF TEST PROGRAM

GSA approved 23 systems projects, with estimated furniture purchases of about $3.5 million, during the first year. Actual data gathered by GSA indicates that only 19 of the 23 projects were carried through by agencies. The cost of furniture components plus installation and delivery charges for completed projects was $4 million.

In the second year of the program, GSA officials approved all project applications which showed space saving potential until the GSA Administrator imposed the furniture moratorium. Approximately 220 applications were approved in an 8-month period. Furniture costs for these projects were estimated at $22.5 million, a 600-percent increase over the estimated furniture costs for the first year. As of April 1980, incomplete data on furniture purchases show at least $14.7 million was spent on projects approved during the second year of the program. Also, an undetermined amount was spent for such things as renovations, design, installation, and accessories.

GSA also granted waivers to some agencies to buy systems furniture outside of the test program. An undetermined amount of funds was spent on these purchases.

GSA officials said their decision to proceed with the second year of the program was based on (1) an estimated 30-percent space savings derived from first-year project applications and (2) general knowledge gained from 15 years use in the commercial market.

However, as shown in chapter 3, we found (1) space saving estimates were overstated or unproven, (2) some agencies did not save any space, and (3) the space savings realized were outweighed by project costs. Further, only 1 of 20 project applications we reviewed contained sufficient data to determine either space savings or cost benefit.

At no time did GSA officials establish a ceiling on the number of projects or the amount of costs which should be incurred during the test program. As a result, what started out as a relatively modest $3.5 million test program rapidly developed into a $26 million program. Until the furniture moratorium, GSA had plans for a third year which may have added about 300 projects and $40 million to the program.

GSA DID NOT WAIT FOR CONSULTANT'S EVALUATION

In November 1978 GSA contracted with BOSTI to evaluate nine first-year projects and one second-year project. BOSTI was to (1) analyze the economics of systems furniture installations and (2) evaluate and describe user attitudes and behavior, including impacts on user and organization productivity and on organizational structure and dynamics. In its contract proposal, the consultant stated that GSA and other Government agencies needed to become sufficiently knowledgeable about the pros and cons of using systems furniture and open planning to conduct a valid test program. BOSTI also emphasized the importance of evaluating early installations to guide future ones. A separate evaluation of 4 to 10 projects was considered sufficient to draw conclusions about the program. Due to delays in the completion of furniture projects, BOSTI did not begin its initial site visits until December 1979. However, GSA, in its haste to forge ahead, had already authorized 220 additional projects before it gave BOSTI notice to proceed on its initial site visits. These additional projects were authorized without knowing whether projects approved in the first year actually saved the amount of space projected.

BOSTI's interim report on its preliminary evaluations of four projects indicates two of them saved enough space to pay for themselves in 6 to 8 years. However, the payback period for the other two projects exceeded the maximum 8-year period allowed by GSA, which is based on the expected useful life of the furniture. In its preliminary evaluations BOSTI did not consider costs relating to renovation and design services when computing the payback period of the four projects. In its final report BOSTI plans to include renovation costs but not design costs. We believe both renovation and design expenses are a legitimate cost of any project and should be included when performing the cost-benefit analysis; to do otherwise would understate the cost of the project and result in a more favorable payback period. When these additional costs are considered, the economic feasibility of all four projects may be questionable.

BOSTI also reported qualitative conditions and behavioral attitudes which would have a negative impact on productivity. Some of these include:

--Most staff at all four projects were disrupted by an increased noise level due to the open plan of the area.

--Fifty percent of the staff at two sites did not like their work stations. Most felt too crowded in their space or stated the work surface was not large enough for them to handle frequently used documents such as maps and computer printouts.

Although BOSTI has told PBS it will not be able to measure productivity, the negative attitudes expressed by users are counterproductive to accomplishing work tasks.

ALTERNATIVES NOT CONSIDERED

Throughout the test program, GSA approved all systems furniture project applications without considering whether agency space problems could be solved through other means. PBS did not consider alternatives such as better records management and information handling systems, although at two project sites we visited the absence or presence of such alternatives had a major impact on the project's viability. This is contrary not only to good management but also to guidelines GSA published for agency use in solving space problems. Furthermore, GSA did not fully consider its own space standards as published in the Federal Property Management Regulations (FPMR) 101-17.3. These standards establish the amount of workspace allowed for employees according to their grade level, organizational

roles, and responsibilities, such as professional, technical, administrative, and clerical.

Improved records and workflow management

During one site visit, we found the Department of Labor's Federal Employee Compensation Administration office in Boston achieved greater space efficiency by embarking on an extensive program which included systems furniture. At the Department's request, GSA's National Archives and Records Service studied every aspect of program management including workflow, paper management, and physical organization of staff. Filing systems modernization, reorganization of staff structure, and workflow preceded the final step of adopting a systems furniture setup.

The study set forth detailed findings and recommendations to improve the efficiency of space use. Some of those recommendations include:

--Simplify filing and case folder finding by improving filing techniques and case control.

--Reduce volume of closed case files retained in office space.

--Eliminate unnecessary furniture, including file cabinets.

--Conduct a detailed study of the claims processing system.

Department officials said systems furniture would not have helped their situation if they did not improve the management of records and workflow. The officials did not think they saved any space with the furniture but improved the congestion and noise level around the work area. However, GSA did not consider that space savings were the result of improved information handling and not systems furniture when it approved this project.

The National Archives and Records Service also performed a study for another project we visited in Boston. The study was to assess the impact of EPA's record holding and related equipment on its space use. This study showed that work station space occupied by files, bookcases, and reference tables was equivalent to 45 work stations or 4,200 square feet. According to the study, 2,000 square feet of this space could be saved if the agency reduced the amount of space occupied by records. During our visit

to this agency's office where systems furniture privacy panels were installed, we noted the work station areas were crowded. Also, quite a number of tables were being used in addition to freestanding desks. It did not appear the agency implemented the study recommendations.

GSA space standards not considered

GSA approved one application where the space provided agency personnel significantly exceeded that specified in published GSA standards. For example, the existing average use rate for the Federal Aviation Administration's (FAA's) office in Brussels, Belgium, was 336 square feet per person. In comparing conventional and systems furniture options, the agency computed the additional cost related to conventional furniture based on space allowances exceeding those established by the FPMR. The agency proposed 400 square feet for the office director, 300 square feet each for two other employees, and 1,000 square feet for an executive conference room. The FPMR establishes the normal maximum allowance for private offices at 300 square feet, but only where it is necessary for the occupant to confer frequently with sizable groups and a conference room is not available. The official who prepared the cost-benefit analysis said the space allowance was based on what the agency normally allows for its regional offices. Even with system furniture, the agency is planning to provide the director with a 365-square foot office.

GSA should have required the agency to comply with the FPMR as a means of reducing the required space rather than authorizing systems furniture.

GSA DID NOT EXERCISE ADEQUATE DIRECTION AND CONTROL

One of GSA's program objectives was to minimize problems by using specific reviews, strict qualifications, and tight process controls. However, GSA did not achieve these objectives.

Although GSA authorized systems furniture purchases based on plans submitted by agencies, it did not take steps to ensure the agencies complied with the plans. Agencies, in fact, did not always order the number of work stations they were authorized to buy nor order complete work stations. For example, EPA in Boston proposed and GSA approved the installation of 250 systems furniture work stations in 53,700 square feet of space. However, EPA did not buy 250 complete work stations. Instead, it only bought 144

partial work stations, primarily divider panels. GSA officials said it was a program requirement to purchase only complete work stations. However, the EPA application showed it did not plan to buy complete work stations, and it was still approved by GSA.

In another case, the National Archives and Records Service, Office of Presidential Libraries, in Boston did not achieve the space saving goals outlined in its application nor use systems furniture in the proper manner. The project application stated that 58 work stations would be installed in approximately 6,800 square feet of space. The expected space use rate was 118 square feet per work station, an estimated 20-percent space saving compared to using conventional furniture. During a site visit we discovered the work stations were installed in a 9,800-square foot area. This equates to a space use rate of 169-square feet per work station compared to the 118-square foot rate cited in the application.

Most of the work stations purchased for the National Archives and Records Service were freestanding desks without systems furniture partitions. Several of the freestanding desks were placed in enclosed offices. The furniture was recommended by the building architect to match the decor of the building and to meet a need for large work surfaces, not to save space. The selection of the furniture and the way it was used canceled the space saving potential of this project.

We believe GSA's review of project applications and adherence to strict qualification requirements was superficial at best. GSA was often unaware of conditions which were clearly stated in project applications. As pointed out in chapter 3, the applications also lacked key data needed to determine the cost effectiveness of systems furniture; the prime factor GSA was searching for when reviewing and approving projects during the test program.

According to GSA's manual on small office space planning, there are several ways to achieve more efficient use of space. Some of these include (1) adhering to space standards established in the FPMR, (2) using the open plan concept, (3) using furniture programs, (4) applying expert space planning techniques, and (5) improving information handling systems.

The Systems Furniture Test program represented GSA's attempt to satisfy space needs through greater space efficiency. However, installing systems furniture may not solve the problem of inadequate space. It may only

be a temporary solution or a piecemeal approach to a problem caused by poor management of records and workflow or inefficient use of existing office furniture.

GSA's space managers view systems furniture as one of several alternatives available to help solve the Government's space management problem. They believed it was "an idea whose time has come" for the Government. However, we believe the public interest would have been better served by exhausting other alternatives first.

CONCLUSIONS

We believe GSA should have exercised patience and waited for the first year's results before embarking on a major program expansion during the program's second year. In our opinion, GSA has unwisely allowed too many projects into the test program without considering the proper scope of the program or alternatives to systems furniture. Also, GSA acted without benefit of sufficient data or the results of its consultant's evaluation. As a result, millions of dollars have been spent, much of which may have been wasted, on systems furniture without knowing whether it saves space or is cost effective.

CHAPTER 3

THE SYSTEMS FURNITURE TEST PROGRAM FAILED TO SHOW EITHER SPACE SAVINGS OR COST EFFECTIVENESS

We found numerous problems with the Systems Furniture Test program as it operated before the GSA Administrator imposed a moratorium on the program. Conceptually, the idea of using systems furniture to help solve space problems has merit. However, GSA's management of the program and some agencies' execution of their projects failed to demonstrate either the space savings ability or the cost effectiveness of systems furniture.

We visited 7 systems furniture project sites and reviewed applications of 20 others. As a result of our visits, reviews of applications, and discussions with GSA officials, we uncovered many deficiencies in the Systems Furniture Test program. Among the problems found were:

--Space savings attributed to systems furniture could not be demonstrated, did not occur, or were overstated.

--Costs incurred for systems furniture projects outweighed the space economies achieved.

UNSUPPORTED SPACE SAVINGS

We visited seven sites to determine whether the agencies were achieving the space use rates reported in their applications and whether the space savings outweighed the cost incurred. However, most of the agencies had not identified any actual space savings. Only EPA in Boston was able to produce a cost-benefit analysis to show whether space savings or other benefits outweighed incurred costs. Although their study indicated potential savings of 3,400 square feet, the agency bought only about half the wall panels needed to achieve this saving. In fact, data provided by project officials shows there was no space saved, and an increase in agency staff was taken care of through rental of additional space. As a result, planned space savings did not occur.

Three agencies we visited knew how much space was being used before their systems furniture was installed. One of these agencies, the National Forest Service, was able to install three additional work stations in approximately the same area they were using without systems furniture. However, no real space savings resulted, since all three work stations remain empty with no plans to occupy them.

We were told that the additional work stations were purchased to demonstrate the capability to house more people.

SPACE SAVINGS OVERSTATED

GSA published a booklet entitled, "A Manager's Guide to Systems Furniture." In it GSA stated that for 150 projects the average space savings was 34 percent and the payback period on the original purchase would be less than 4 years. However, the space savings was determined by comparing the anticipated space use rate with the average rate, 169 square feet per person in GSA-controlled space, throughout the Government, not the actual rate being used by the agency. Data from the project sites we visited showed this sort of comparison produced a greater savings than actually realized. For example, using GSA's method of comparison indicates that 1,674 square feet (169 square feet average - 107 square feet actual x 27 work stations) was saved at the National Forest Service project. However, only about 486 square feet (125 square feet actual - 107 square feet actual x 27 work stations) was actually saved. Under GSA's method of determining space savings, the systems furniture would pay for itself in about 5-1/2 years. However, based on the actual rate used by the agency, it would take about 19-1/2 years.

One of the test program objectives was to demonstrate the cost effectiveness of the project. GSA used the above technique to demonstrate that the projects were saving space and were cost effective. However, the actual savings for the projects we examined proved to be much less.

COSTS INCURRED OUTWEIGH SPACE ECONOMIES

The cost effectiveness of systems furniture as a space saving method is a critical factor, because it was the basis for justifying purchases in the test program. We believe GSA, as the program's sponsor, and the agencies purchasing systems furniture should have analyzed all the costs and benefits involved and demonstrated the cost effectiveness before purchasing furniture for any project.

Although GSA officials stated, in response to a report of their own Inspector General, that systems furniture benefits far outweigh the costs incurred, this contention was not supported by our audit. A review of project applications showed GSA lacked sufficient data to perform adequate cost-benefit analyses. Also, data gathered during our site visits showed that space savings estimated on project applications did not occur, could not be demonstrated, or were not as great as anticipated. Also, we found:

--Actual costs were significantly higher than anticipated or estimated.

--Many work stations remain vacant or unassembled.

Thus, systems furniture projects could only be justified if measurable morale or productivity improvements were present. However, GSA officials and the consultant hired to evaluate the program decided that such factors could not be effectively measured. We believe such factors must be considered to obtain a true picture of the cost effectiveness of systems furniture. As pointed out in chapter 2, systems furniture may be counterproductive--employees at projects visited by GSA's consultant reported being disturbed by increased noise levels or lack of adequate work surfaces to perform their duties. In some cases the negative effects on morale and productivity may exceed the savings resulting from reduced space requirements, making it unwise to purchase systems furniture.

Insufficient data to measure cost effectiveness

In response to a GSA Inspector General report which was critical of systems furniture, GSA officials stated the dollars spent ($22.7 million) were far outweighed by the already mentioned $6.3 million of savings per year of office rental, yielding a 3.6-year payback on savings alone. However, these figures are based solely on the estimated cost of systems furniture components and related design costs. They do not include related costs, such as renovation, installation, and accessories which were also incurred by agencies, and assume that projected space savings are realized.

Agencies were not required to submit sufficient data for GSA to adequately judge whether each prospective project would be cost effective nor did most agencies we visited make such a determination on their own. All of the applications we reviewed lacked key data needed to compare before and after conditions and determine dollar savings and total costs for each individual project. Some missing elements were:

--Actual space use per employee before systems furniture was acquired.

--Rent avoidance costs.

--Related project costs, such as design, renovation, accessories, and installation.

--Number, grade, and role (supervisory, professional, technical, and so forth) of employees.

Actual costs significantly higher than estimated costs

Some agencies were incurring costs substantially greater than the estimated cost of the systems furniture. Besides the systems furniture and installation costs, agencies incurred other costs attributable to the purchased systems, such as professional design services, renovation, seating, and other furniture accessories. At the Department of Agriculture's Science and Education Administration, this resulted in actual costs of over $1 million compared with an estimated cost of $450,000. The costs were incurred as follows:

Systems furniture (including installation)		$ 534,000
Related costs:		
Professional engineering and design services	$107,000	
Renovation	293,000	
Seating and other accessories	144,000	
Subtotal		544,000
Total		$1,078,000

Chairs are not included on the systems furniture supply schedule because GSA officials expected agencies to use their old chairs. However, agencies are expending significant amounts for chairs and accessories at project sites we visited. The National Forest Service also purchased new carpeting and drapes to match the new furniture. The Science and Education Administration, in addition to purchasing new carpeting, also spent $7,100 for ash trays, wastebaskets, calendar pads, and correspondence trays for its project. These and similar items can be purchased from the GSA self-service stores for about $1,200. Also, the Science and Education Administration spent about $5,000 for planters and framed art posters for the project.

Purchases such as tables, chairs, carpets, matching drapes, art posters, and trash cans are not and cannot be related to space saving. The only result of such purchases is to raise the cost of systems furniture projects and reduce or eliminate any potential for cost effectiveness.

Unused work stations

At two agencies reorganizations and personnel changes left a substantial number of work stations unused. All 16 work stations purchased for the White House staff remained in cartons after over 1 year. At the Science and Education Administration project, we found 90 of 217 work stations were not being used, 44 of which were still in boxes. The unused work stations have an estimated cost of over $150,000. To date, neither organization has been able to identify a location for the furniture or staff to occupy it.

In a recently completed interagency audit of property management coordinated by GSA, the Department of the Treasury, Office of Audit, reported on a Treasury Department project having modular space saving furniture. The report disclosed that 50 of 210 work stations were vacant. This occurred because an expected increase in personnel that prompted the purchase of the furniture did not materialize. The report stated agency officials were trying to find another organization to use the vacant space. Based on GSA's estimated average cost of $1,500, the 50 vacant work stations cost about $75,000.

In 1977 BOSTI evaluated a GSA demonstration project. The evaluation was made of different brand systems furniture used in the South Portal Building of the then Department of Health, Education, and Welfare. The contractor revealed that many problems which had been experienced by the users of this project were a function of two factors: (1) the lack of an adequate user needs analysis and (2) the post-occupancy changes which had occurred in the demonstration population. The vacant work stations discussed above were caused by similar factors.

Cost-benefit analysis

Since cost effectiveness is the basis for approving systems furniture projects, we believe that GSA and participating agencies should have addressed the cost and benefit of individual projects before proceeding. We found that this was not done during the test program. Further, while GSA has recently designed a new cost-benefit analysis form which will allow GSA to capture much of the information it formerly lacked, we still have serious reservations about GSA's ability to demonstrate the cost effectiveness of systems furniture. Many of the problems identified cannot be solved by a new form or additional data. Primary examples of this are the fact that (1) some projects simply did not save any space or too little to be cost effective

and (2) many work stations remain vacant or unused because of changes in staffing or organization.

CONCLUSIONS

Conceptually, systems furniture has the potential to be cost effective for space management. However, the Systems Furniture Test program, as it now exists, is not showing this nor will it if it is allowed to continue in this manner. Although GSA has already authorized about 240 projects, it lacks sufficient data to demonstrate either that systems furniture saves space or is cost effective in other ways. For example, GSA and its consultant decided that productivity or morale improvements resulting from systems furniture could not be effectively measured. We believe such factors should have been considered during the test program to obtain a true picture of the cost effectiveness of systems furniture.

GSA also lacks effective control over the program and is often unaware of specific actions taken by participating agencies. Thus, it has been unable to stop possible unnecessary purchasing of drapes, carpeting, and other accessories.

Also, some agencies do not appear to be complying with the spirit and intent of the test program. Instead of concentrating on saving space in a cost-effective manner, they appear to be using the program to update their office space to enhance decor. These problems are similar to those experienced by the Office Excellence program.

CHAPTER 4

GSA'S LATEST PROJECT APPROVAL RAISES FURTHER QUESTIONS

After the initiation of the furniture moratorium on October 9, 1979, by the GSA Administrator, GSA officials stopped routinely approving systems furniture project applications. However, GSA continued to approve systems furniture projects.

After the furniture moratorium, GSA officials approved three projects--two of these were Census Bureau projects exempt from the moratorium because of the 1980 census. The third project was for FAA's office in Brussels, Belgium. This project was approved in the words of the FSS Commissioner because of the "* * * overwhelming cost/benefit aspects." The project was purported to have an "immediate" payback based on a cost-benefit analysis form developed by GSA. However, the application contained erroneous and incomplete data, space savings were questionable and probably greatly exaggerated, and GSA's review was superficial.

GSA officials stated they approved this project based on

--the release of 2,000 square feet of space,

--the avoidance of $48,200 in annual rental costs, and

--an immediate payback period.

However, none of these claims were substantiated--a fact GSA officials could have determined if they had closely reviewed the project application and cost-benefit analysis.

SPACE NOT RELEASED

In its cost-benefit analysis, FAA accounted for 5,370 square feet of space under its proposed systems furniture solution. This is 2,020 square feet less than the space previously leased by FAA. GSA believed this space was being released. However, after reviewing project documents we raised questions concerning the actual status of this space. In an attempt to answer our questions, GSA reviewed architectural drawings and consulted with FAA staff. GSA determined that the cost-benefit analysis was in error. No space is being released; the 2,020 square feet actually represents circulation areas which were erroneously omitted from the cost-benefit analysis.

QUESTIONABLE RENT AVOIDANCE

In its project application FAA stated that 5,000 square feet could be saved through the use of systems furniture. This space saving was based on reducing the work area space use rate from 319 square feet per person with conventional furniture to 119 square feet per person with systems furniture--a 200 square feet per person savings. When multiplied by 25 employees, this results in a 5,000 square foot space savings. At a $9.64 per square foot rental rate, this equals an annual cost avoidance of $48,200 in rent. However, FAA's new lease was only 23 square feet less than the old lease.

In reviewing this inconsistency, we found FAA's basis for claiming space savings of 5,000 square feet was weighted heavily in favor of systems furniture. In comparing the space proposed for systems furniture to the existing office space, FAA deducted 2,126 square feet of space from the systems furniture solution for things such as administrative support areas, waiting and reception areas, mailroom, workrooms, and administrative storage areas. However, deductions were not allowed for these areas or activities from the then existing office space. Whether or not separate areas were set aside for reception, mailroom, or storage areas, these activities take place. To deduct the space associated with these activities from one solution and not from the other results is false space savings.

Also, as pointed out above, FAA erroneously omitted an additional 2,020 square feet of space from the systems furniture solution. In effect, at least 4,146 square feet of the 5,000 square feet of space savings reported by FAA could not occur. Actually, only 23 square feet was released.

IMMEDIATE PAYBACK CLAIM UNSUPPORTED

The claim of an immediate payback was based on questionable data. FAA claimed an immediate payback because of the $48,000 in rental savings and because systems furniture costs $54,000 less than conventional furniture.

In calculating the cost of conventional furniture, FAA claimed every major piece of furniture needed to be replaced because it was beyond repair. However, this is questionable since some of the furniture was being sent to the American Embassy for its use. Also, the quality and quantity of the furniture FAA proposed to purchase is open to question. For example, every staff member, including clerical and administrative staff, was supposed to receive executive-level furniture of either modern wood or unitized wood styling. Also,

all staff members would receive desks larger than the standard 60 x 30 inches, ranging in size from 66 x 32 inches to 76 x 38 inches. In addition, extensions ranging in size from 42 to 48 inches were proposed for each desk. Additional furniture included 25 credenzas, 16 telephone cabinets, 13 tables, and 50 bookcases, as well as miscellaneous chairs, reception area seating, and furniture for conference and workrooms. FAA ignored the possible use of excess, rehabilitated, or new furniture which a recent study by the Interagency Task Force on Property Management found stored in numerous warehouses in the Washington, D.C., areas. The only cost associated with this furniture is the shipping cost, a cost which would occur whether conventional or systems furniture was used.

In calculating the cost of conventional furniture use, we believe that FAA also exaggerated the quantity and cost of renovations needed before the furniture could be used. For example, under the conventional furniture solution, FAA assumed that $8,925 would be spent constructing walls for two conference rooms--a 1,000 square foot executive conference room and a 300 square foot general purpose conference room. However, under the systems furniture solution, only one 434 square foot conference room is proposed. If only one conference room of 434 square feet is required under the systems furniture solution, it seems that the requirement under the conventional furniture solution should assume the same level. This would reduce the conventional furniture space requirement by almost 900 square feet, eliminate all the furniture for this conference room, and substantially reduce the renovation costs for constructing walls for this conference room.

Overall, we believe the entire justification for this project is highly questionable. Further, it was approved during the furniture moratorium when GSA should have been giving these applications exceptionally close review.

CHAPTER 5

CONCLUSIONS AND AGENCY COMMENTS

The objectives of GSA's systems furniture program were to save space and related cost through

--placing systems furniture in Government space;

--maximizing the chances of successful installation;

--minimizing problems by use of specific reviews, strict qualifications, and tight process controls; and

--demonstrating space savings and cost effectiveness over the life of each project.

Except for placing systems furniture in Government space, GSA's program has been a failure. Its management of the program has also been poor. For example, GSA embarked on a major expansion of the program during the second year without establishing a ceiling on the number of projects or evaluating the costs incurred under the test program. Also, this expansion was undertaken before GSA received even preliminary data from a consultant employed to evaluate the program. Further, GSA did not consider any alternatives to systems furniture or require agencies to provide sufficient data to make cost-benefit analyses.

In addition to these problems, the Systems Furniture Test program failed to demonstrate space savings or cost effectiveness and did not address the effect on employee morale and productivity. GSA also lacked effective direction and control over the program, its review of applications was superficial, and its approval of a recent project showed a continuation of past trends. In this case, the space savings were greatly exaggerated, the cost-benefit analysis contained erroneous and incomplete data, and GSA's review overlooked significant questionable data items which should have raised serious questions about the project.

AGENCY COMMENTS

As arranged with the Senate Subcommitee on Federal Spending Practices and Open Government, Committee on Governmental Affairs, we obtained comments from the Administrator, GSA, but did not obtain comments from the other agencies included in this report.

In responding to our draft report, GSA agreed with our proposal that the test program should be canceled immediately. (See app. I.) GSA stated that the test program would be canceled immediately and that the acquisition of systems furniture would be suspended

> "* * * until adequate data has been collected and proper management controls are in place to ensure that only cost effective applications of systems furniture are pursued."

Although we concur with GSA's proposed actions, we have some reservations since GSA's test program had similar objectives. As a result, we plan to evaluate GSA's future actions to correct program deficiencies, establish proper management controls, and ensure that only cost-effective applications of systems furniture are pursued.

General
Services
Administration Washington, DC 20405

June 6, 1980

Honorable Elmer B. Staats
Comptroller General
General Accounting Office
Washington, DC 20548

Dear Mr. Staats:

Over the past several months I have been extremely concerned with the General Services Administration (GSA) systems furniture program. In order to ensure that this program would be given the management attention I believe it deserved, on March 6, 1980, I directed GSA's Systems Acquisition Review Council (SARC) to review the program and report to me with recommendations concerning its future implementation.

On June 2, 1980, the SARC presented to me a report which recommended that the acquisition of systems furniture be suspended until proper management controls are in place to ensure that only cost effective applications of such furniture are pursued. Attached for your information is a summary of the SARC report which proposes a specific course of action to bring this matter under control and establish a sound management framework.

I have approved the SARC report and have instructed my staff to proceed immediately with the implementation of recommendations.

We will continually monitor our progress in this effort and will keep you informed as to any significant developments. I appreciate your interest in GSA's programs, and will be happy to answer any questions you may have.

Sincerely,

R. G. FREEMAN III
Administrator

Enclosure

APPENDIX I

EXTRACT

SARC Report on GSA's Systems Furniture Program

Background

Systems furniture can be defined as a kit of modular components such as work surfaces, storage units, power and communication outlets, and privacy panels which can be assembled into workstations of various sizes and complexity. The use of systems furniture has been said to offer the potential for: a) housing more people in less building space; b) providing greater flexibility for accommodating organizational and functional changes in less time and at reduced costs; c) energy savings; and d) increased productivity.

In March 1978, GSA initiated a Systems Furniture Test Program to evaluate these potential benefits and determine the applicability of systems furniture to the Federal Government. During Phase I of this test program, GSA approved 23 projects with an estimated furniture acquisition cost of $3.5 million. In Phase II, begun in March 1979, an additional 220 projects were approved to buy 13,500 workstations at an estimated cost of $22 million. In October 1979, the test program was temporarily halted when a moratorium was imposed on all furniture purchases. On March 6, 1980, the program was suspended pending a review by the SARC. The program, if continued, is estimated to involve from $20 to $35 million in furniture costs annually.

The SARC reviewed documentation submitted by GSA's Public Building Service (PBS), the Federal Supply Service, a draft GSA audit on systems furniture, a summary of the costs/benefit methodology analysis prepared by GSA's Office of Plans, Programs and Financial Management, and an advance draft of the digest of a soon-to-be released GAO report on the program. Based on this documentation and a presentation made by PBS, the Council unanimously reached the following conclusions.

1. Systems furniture is a viable option to be considered along with conventional furniture and other types of modular furniture in furnishing Federal Government space. Selection of the appropriate option should be based on furniture acquisition and facility modification costs and other factors involved in the total work environment, such as employee productivity, energy conservation, space utilization and physical flexibility for accommodating organization change. The maximum reutilization of excess and rehabilitated government-owned furniture is government policy and must be included as a consideration in any action for the acquisiton of new furniture.

2. The current test program was not designed to adequately demonstrate that the use of systems furniture is cost-effective when all factors are considered.

2

3. The acquisition of systems furniture does not inherently preclude or limit competition. The initial acquisition of each application of system furniture can and should be fully competitive. Significant modifications to the initial acquisition such as the addition of several workstations also can be fully competitive. Currently, only minor additions for reconfiguration and replacements need to be acquired from the initial supplier. Any future systems furniture program should have as its objective the maximum level of competition possible and should foster interoperability and the standardization of hardware modules procured by the government.

4. There are a number of governmental and quasi-governmental organizations, such as the courts, the Postal Service and the military overseas, that are outside GSA's jurisdiction or that use GSA's sources of supply on a voluntary basis. Therefore the cancellation or suspension of the systems furniture program will not necessarily halt all acquisition of systems furniture by the government.

Recommendations

The Council then made the following recommendations, which as indicated above, I fully support.

1. That the test program be cancelled immediately and that the acquisition of systems furniture be suspended until adequate data has been collected and proper management controls are in place to ensure that only cost effective applications of systems furniture are pursued.

2. That within thirty days the Commissioner of PBS with the participation of FSS will develop and submit to the SARC a time-phased implementation plan which addresses:

a) the development of a cost/benefit methodology to aid the decision-making process for the acquisition of systems furniture, including all pertinent factors such as furniture acquisition costs, availability of acceptable furniture stocks, facility modification costs, total work environment improvement, space utilization, energy efficiency, flexibility to accommodate organization change, and the effect on productivity;

b) the establishment of a long-term systems furniture process for agencies within GSA's jurisdiction that will establish the criteria for the cost-effective use of systems furniture, incorporating the factors listed above and any special considerations for new facilities, exisitng facilities or historic facilities; the documentation required; the roles of the various GSA organizations (PBS, FSS, ADTS and NARS) in the approval process; and the needed management controls;

c) an assessment or market survey of the use of systems furniture by the private sector and its future trends;

d) the establishment of a process to review the installation and post installation of systems furniture; and

e) the development of an appropriate program management structure for the entire effort.

3. That upon completion of these tasks, as specified in the plan, PBS will submit a report to the SARC describing the results of its analysis and its recommendations regarding a systems furniture program. The SARC will review the submission in terms of need, alternative solutions, and costs and will make appropriate recommendations to the Administrator.

4. That during the interim, agencies currently using systems furniture may acquire minor add-ons, replacement components, and maintenance or repair of existing components through their own small purchase procedures. However, any acquisition of this type must be formally approved by the agency's property management officer (PMO).

5. That in recognition of the fact that there may be rare instances where ongoing projects or projects in the pipeline involving systems furniture should be approved for overriding reasons involving project investment to date and cost to modify facilities, there should be a procedure for the review and approval of these projects. These projects will be rigorously evaluated by the Commissioners of PBS and FSS on a case by case basis and will require approval by the Administrator or Deputy Administrator. Approval should be given only if it can be clearly demonstrated that there is a significant advantage to the taxpayer to do so, all factors considered. An example of this type of situation might be where the design criteria of a renovated historical building included the use of systems furniture, and the design and construction of the building has progressed to the point that it would be more costly for the Government to abandon systems furniture than to continue with it.

6. That any future systems furniture program be configured to promote the maximum competition, with particular emphasis on the interoperability and standardization of components as a long-term objective.

7. That the agency's decision on this matter be clearly communicated to parties with direct and substantial interest in this matter.

APPENDIX II

PRINCIPAL GSA OFFICIALS RESPONSIBLE FOR THE SYSTEMS FURNITURE TEST PROGRAM

Office of the Administrator	Tenure of office From	To
Administrator:		
R. Freeman III	July 1979	Present
P. Goulding (acting)	Apr. 1979	July 1979
J. Solomon	May 1977	Apr. 1979
Public Building Service		
Commissioner:		
A. Marshall	July 1979	Present
D. Keilman (acting)	Dec. 1978	July 1979
J. Shea, Jr.	July 1977	Dec. 1978
Assistant Commissioner:		
J. Whitlock	Jan. 1980	Present
L. Shipp, Jr.	Jan. 1979	Jan. 1980
J. Yiakis (acting)	Feb. 1979	Oct. 1979
Deputy Assistant Commissioner:		
Vacant	Mar. 1980	Present
J. Whitlock	Apr. 1979	Mar. 1980
Space Management Division		
Director:		
P. Herndon	Nov. 1979	Present
Space Standards and Research Branch		
Chief:		
F. Hendricks	Sept. 1977	Present
Federal Supply Service		
Commissioner:		
T. Morris	Dec. 1979	Present
H. Harvell (acting)	July 1979	Dec. 1979
R. Morgan (acting)	July 1979	July 1979
D. Waldon (acting)	May 1979	July 1979
W. Kelly, Jr.	Oct. 1978	May 1979
R. Graham	July 1977	Oct. 1978
National Furniture Center		
Director:		
P. Ogin	Jan. 1980	Present
W. Richardson	July 1979	Dec. 1979
N. Hill	Dec. 1978	July 1979

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